

UNPUBLISHED  
SURVEY & CONTROL  
REPORTS

INTERMOUNTAIN STATION  
Central Reference File

No. 3-11-22-11

NOT FOR PUBLICATION

*Missoula*

INTERMOUNTAIN FOREST AND RANGE EXPERIMENT STATION  
FOREST SERVICE, U. S. DEPARTMENT OF AGRICULTURE  
Ogden, Utah

Reed W. Bailey, Director

Pine Butterfly Appraisal Survey  
Salmon National Forest  
Idaho  
1958

By

W. E. Cole  
Entomologist

Prepared by

Division of Forest Insect Research  
Boise Research Center  
Boise, Idaho

JOHNSON \_\_\_\_\_  
KEITH \_\_\_\_\_  
NELSON \_\_\_\_\_  
BATT \_\_\_\_\_  
DENTON X \_\_\_\_\_  
DORGE \_\_\_\_\_  
FELLM \_\_\_\_\_  
VENNELL \_\_\_\_\_  
TURNBOLT X \_\_\_\_\_

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## PINE BUTTERFLY APPRAISAL SURVEY

### SALMON NATIONAL FOREST

#### IDAHO

October 1958

By  
W. E. Cole  
Entomologist

### INTRODUCTION

Abnormally large numbers of adult pine butterfly<sup>1/</sup> were noted during the 1958 aerial survey within several drainages on the Salmon National Forest. Due to the destructive capabilities of this butterfly in ponderosa pine, a biological evaluation of the outbreak was made immediately.

According to the history of occurrence of butterfly epidemics it would be unusual if this outbreak should develop into a full-scale epidemic. Literature reveals only 4 large outbreaks: 1882, 1896, 1922, and 1953. In each case approximately 3 years elapsed before the pine butterfly epidemics reached tree-killing proportions. Then in each case the hymenopterous parasite, Therionia atalantæ (Poda), built up in numbers and the outbreak ceased, but always too late to prevent large amount of timber loss. In 1953 aerial spraying on the Boise Forest stopped a serious epidemic. However, shorter-lived outbreaks without serious damage have occurred such as in 1917 around Idaho City, Idaho.

### SURVEY METHODS

Four twigs (approximately 15-inches long) were taken from each of 20 trees within each of four drainages. The trees sampled were spaced one to two chains apart. Four drainages, Colson, Spring, Hull, and Dahlenoga Creeks, were selected from the aerial and ground reconnaissance reports.

Normally the ridge tops are selected for sampling since more reliable results can be obtained. However, since the pine-type does not exist on these high ridges, the sampling was restricted to creek bottoms. It has been found that the average number of eggs per twig is fairly consistent between ridge and creek sites, but it is the occurrence of eggs on the twigs that is unstable. In other words, in creek sampling more zero counts are obtained, but those twigs affected contain more eggs than on the ridge; thus averaging the same as the ridge but showing greater variance<sup>2/</sup>.

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<sup>1/</sup> Neophasia menapia (F. & F.)

<sup>2/</sup> Cole, W. E. Surveys and control methods of the pine butterfly during an outbreak in southern Idaho. 1953-1954. Res. Note No. 30, 1956. Intermountain Forest and Range Exp. Station, Forest Service, Ogden, Utah.

The twigs were subsequently examined and the number of eggs found was recorded. Based on experience the following standards were used for classification of the infestation according to the average number of eggs per twig:

Heavily infested - 9 or more eggs per twig  
 Moderately infested - 5-8 eggs per twig  
 Lightly infested - 2-4 eggs per twig  
 Endemic - Less than 2 eggs per twig.

## RESULTS

No drainage sampled contains epidemic numbers of pine butterfly, but the results shown in table 1 do indicate the need for continued vigilance since egg counts in two of the areas are relatively high.

Table 1. Results of the pine butterfly egg survey

Area	Total eggs per twig	Coefficient variation (percent)	Green eggs per twig	Coefficient variation (percent)	Percent eggs destroyed
Colson Cr.	6.84 $\pm$ 1.49	21.84	6.31 $\pm$ 1.55	24.52	7.69
Spring Cr.	6.95 $\pm$ 1.14	16.43	5.58 $\pm$ 1.05	18.84	19.60
Dahlonge Cr.	0.69 $\pm$ .36	52.42	0.54 $\pm$ 0.34	63.33	21.82
Hull Cr.	0.11 $\pm$ 0.11	100.00	0.11 $\pm$ 0.11	100.00	0

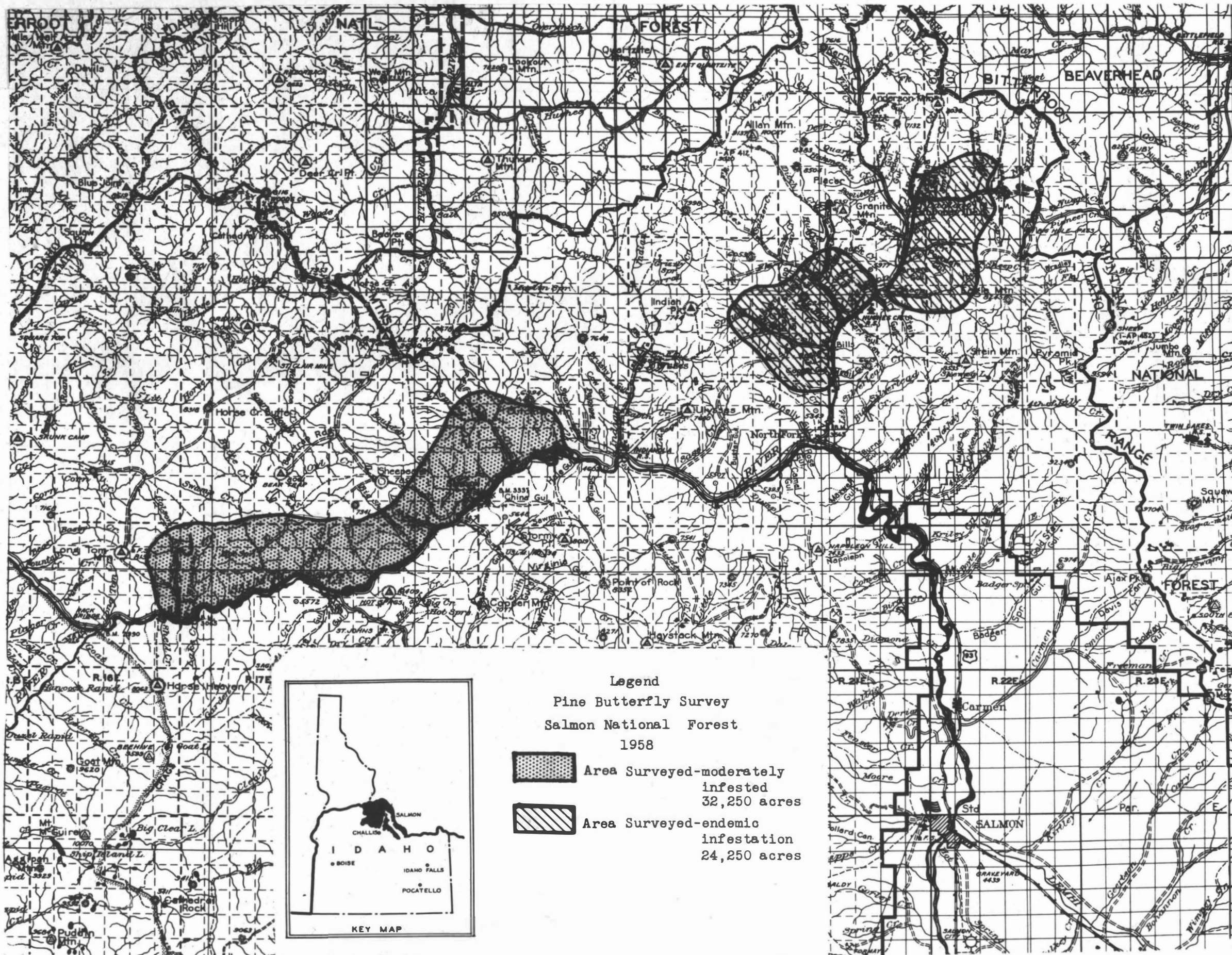
Two things stand out in these early stages of a possible pine butterfly epidemic: (1) Colson and Spring Creeks show rather high numbers of eggs, and (2) only Dahlonge Creek was sampled for Theronia atalantae (Poda), but unusually high numbers were found.

Defoliation of the pine was of light intensity generally, though spotty concentrations of heavy damage were found within Colson and Spring Creeks. Approximately 32,250 acres contain a moderate infestation. The surrounding area can be considered at endemic level.



## CONCLUSION

The pine butterfly definitely appears to be on the increase within Colson and Spring Creek drainages on the Salmon National Forest. However, no extensive damage has been noted and the heavy populations are localized at this time. These areas will be kept under close surveillance in the future.





Legend  
Pine Butterfly Survey  
Salmon National Forest  
1958

-  Area Surveyed-moderately infested  
32,250 acres
-  Area Surveyed-endemic infestation  
24,250 acres

